



U.S. DEPARTMENT OF
ENERGY

Office of
Science

SBN Near Detector Building Conventional Facilities Update

Steve Dixon

LAr1-ND Collaboration Meeting

16 September 2014

Agenda

- Progress Since July
 - Design Refinement
 - Cost Estimate
 - Potential Changes
 - Project Plan
- What's Next

Location Plan



Near Detector Site Location



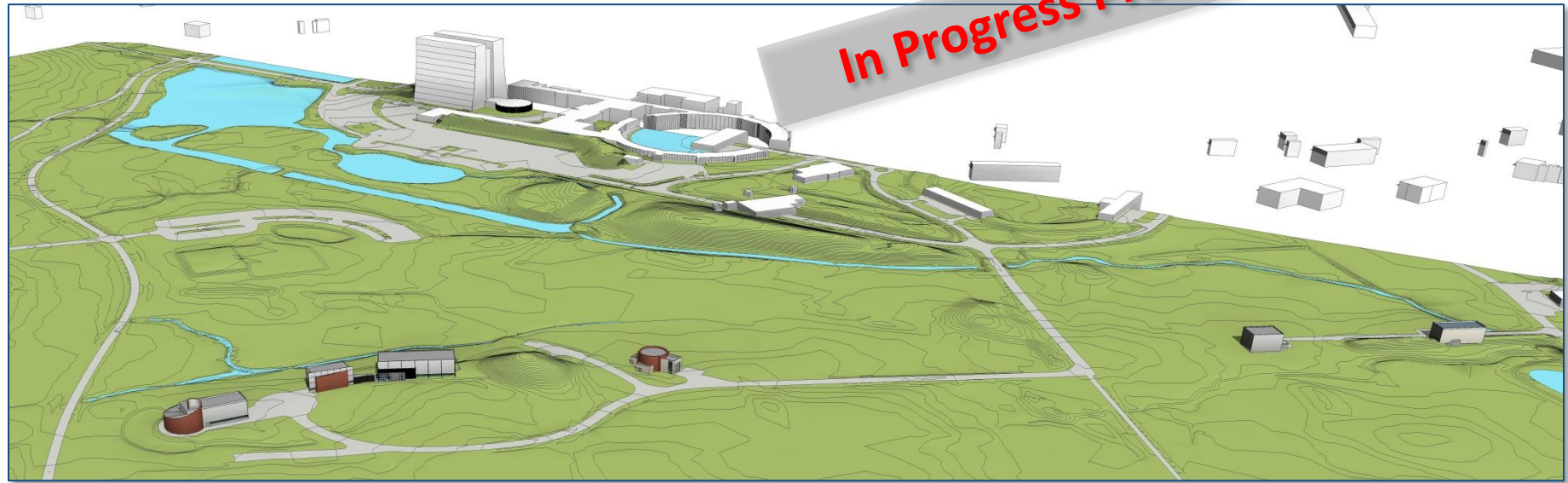
Looking North - September 2007

Near Detector Site Location



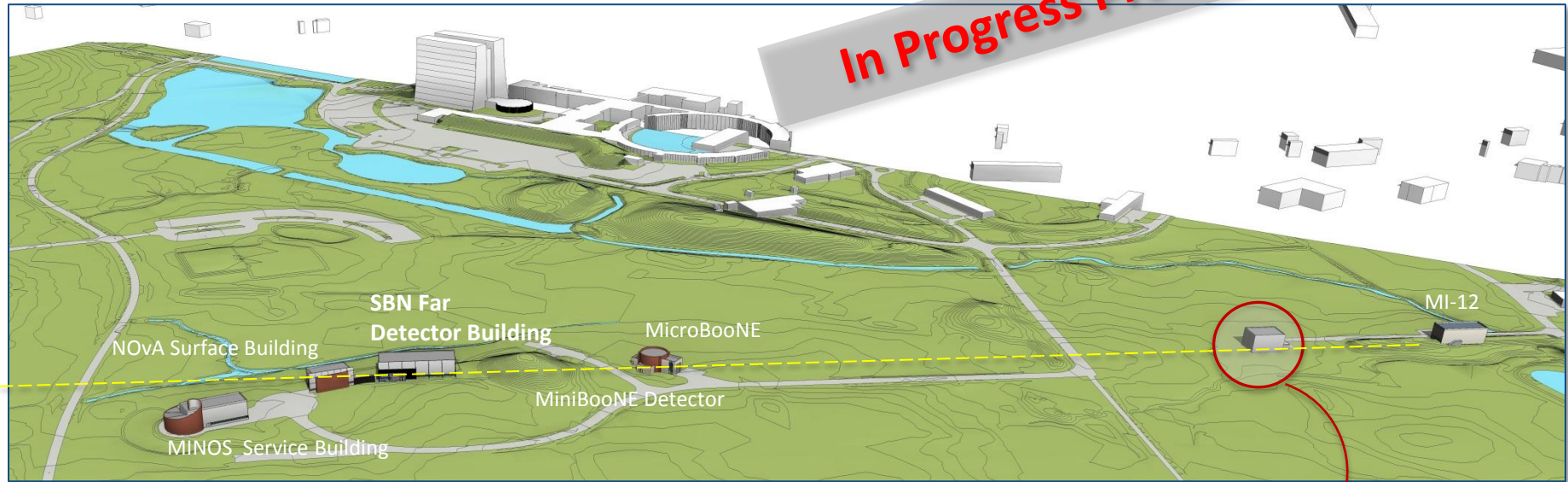
Looking South - September 2007

Aerial View from West



Aerial View from West

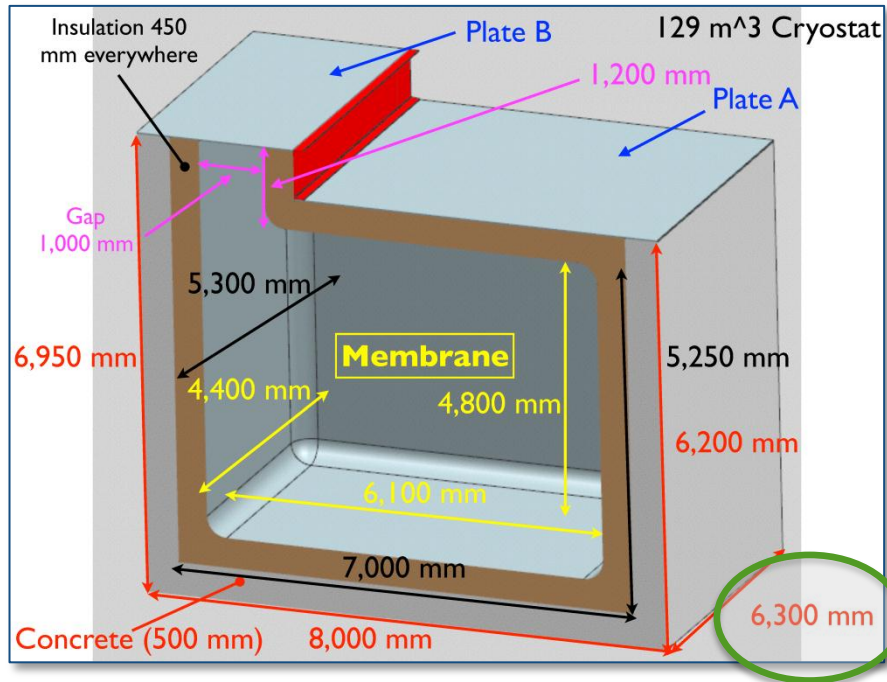
In Progress Preview



SBN Near Detector Building

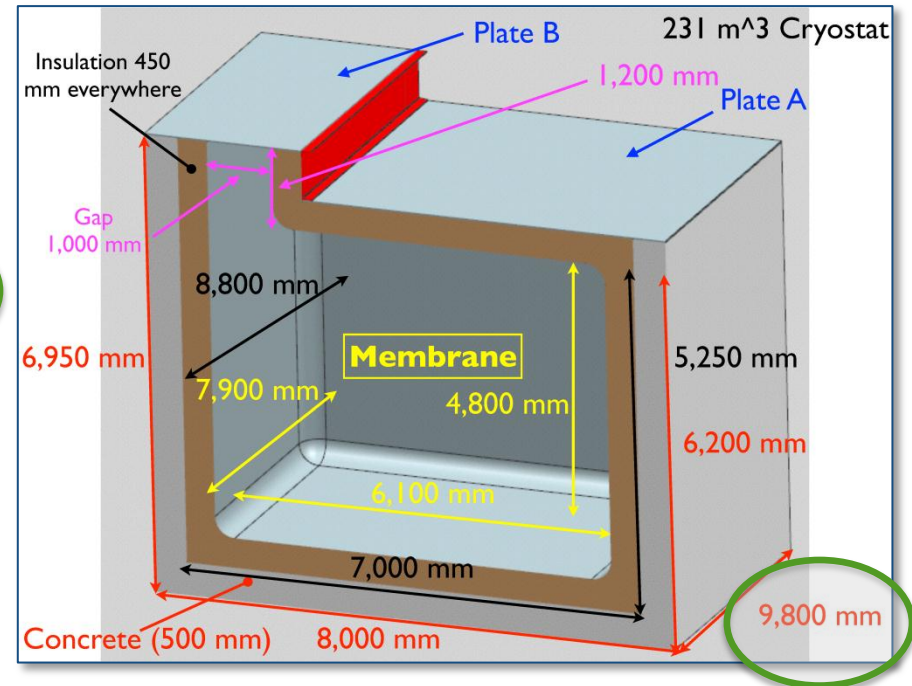


Near Detector - Requirements



129m3 Version

From D. Montanari

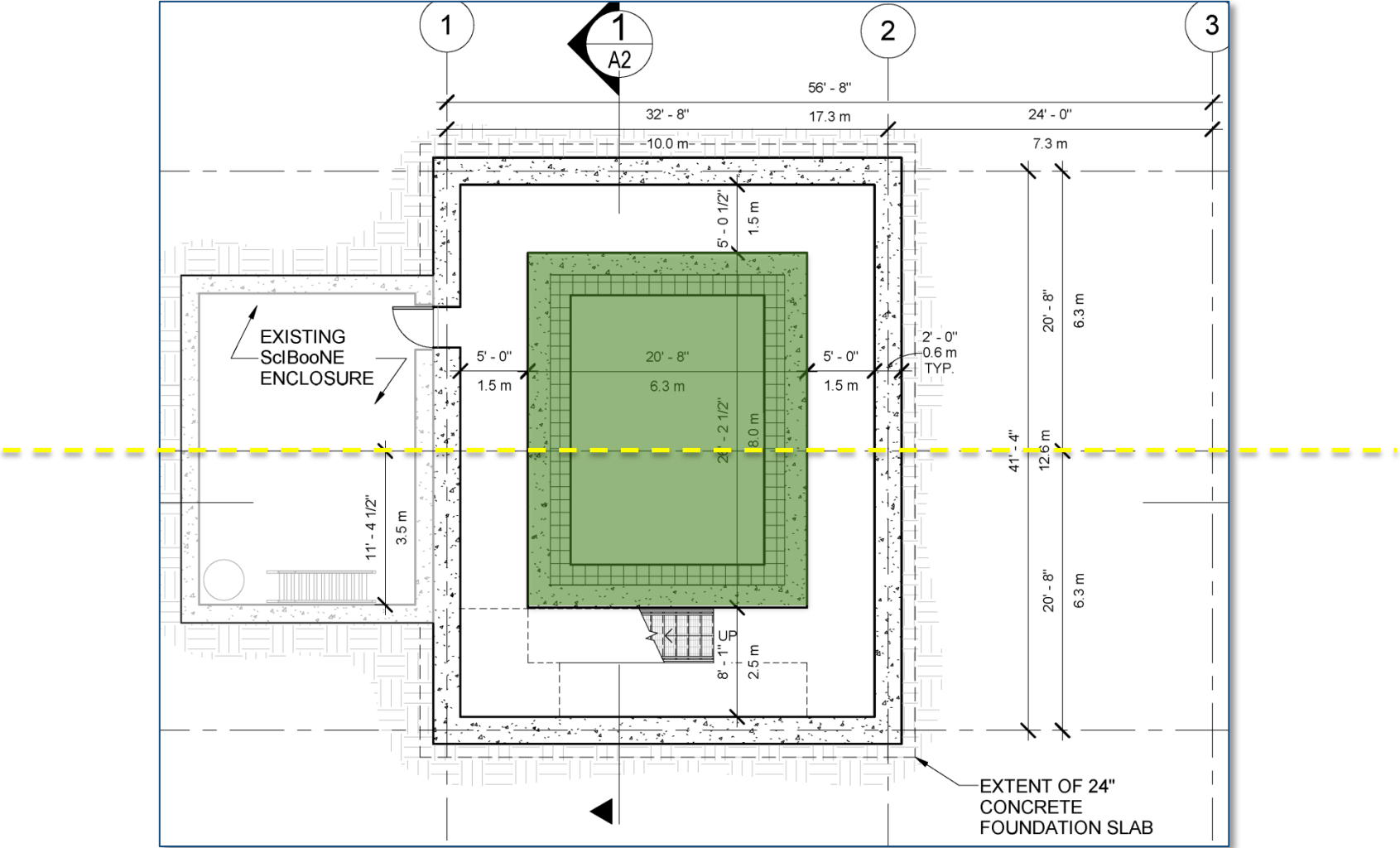


231m3 Version

Design/Cost Estimate Process – Target: \$3.5m

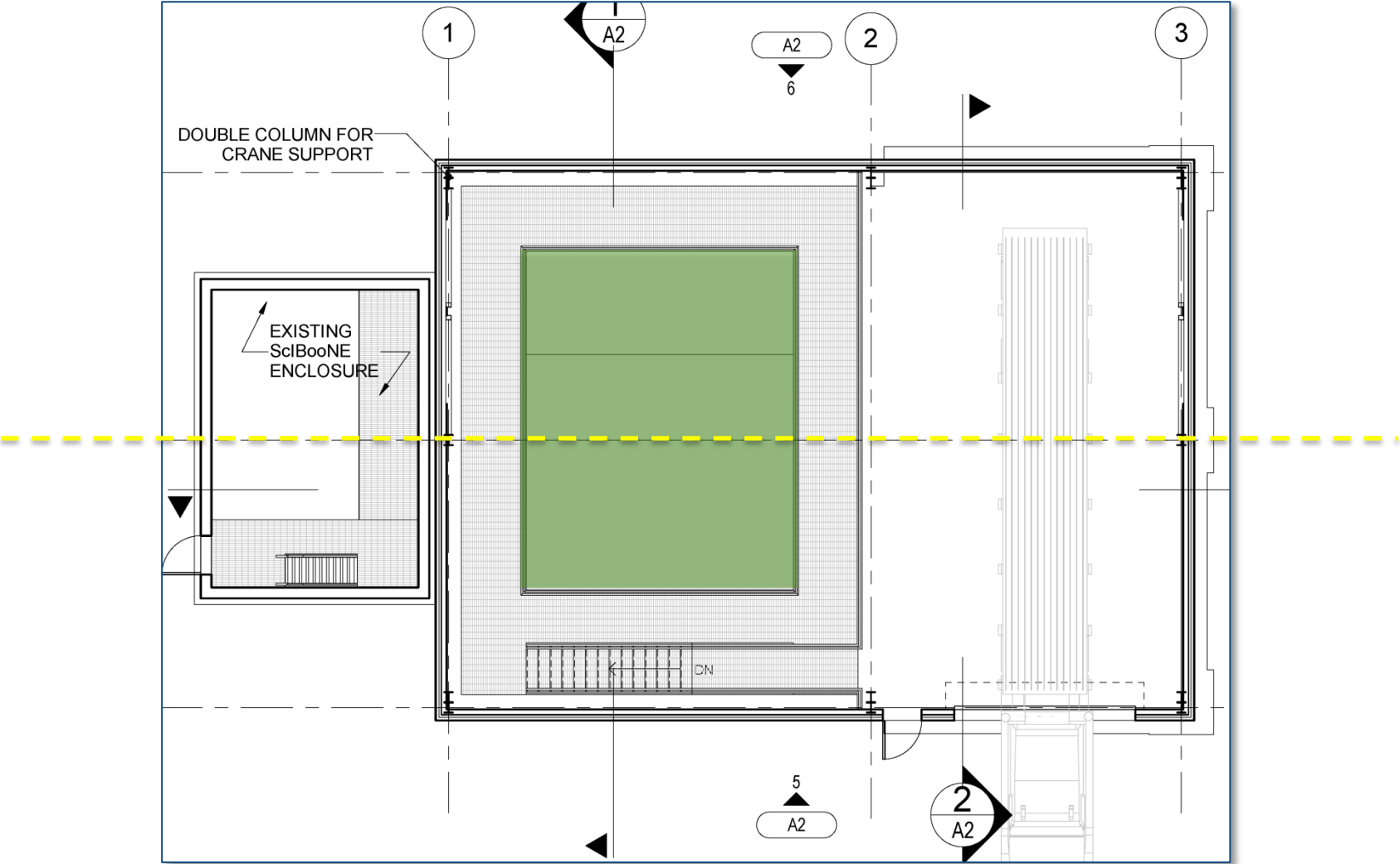
- July 2014 Design Refined – 2 designs at 2 locations
- *August 2014 - External Estimate*
 - *129m3 Version - \$4.3m (total project cost)*
 - *231m3 Version - \$5.1m (total project cost)*
- *Scope Reductions – focused on 129m3 version*
 - *Eliminated additional loading dock bay*
 - *Removed toilets/utilities*
 - *Removed cryostat concrete*
 - *Reduced siding cost*
 - *Onsite disposal of excess spoils*
 - *Moved overhead crane from Base Scope to Scope Contingency*
- *August 2014 - External Estimate - \$3.5m (total project cost)*

Near Detector Building



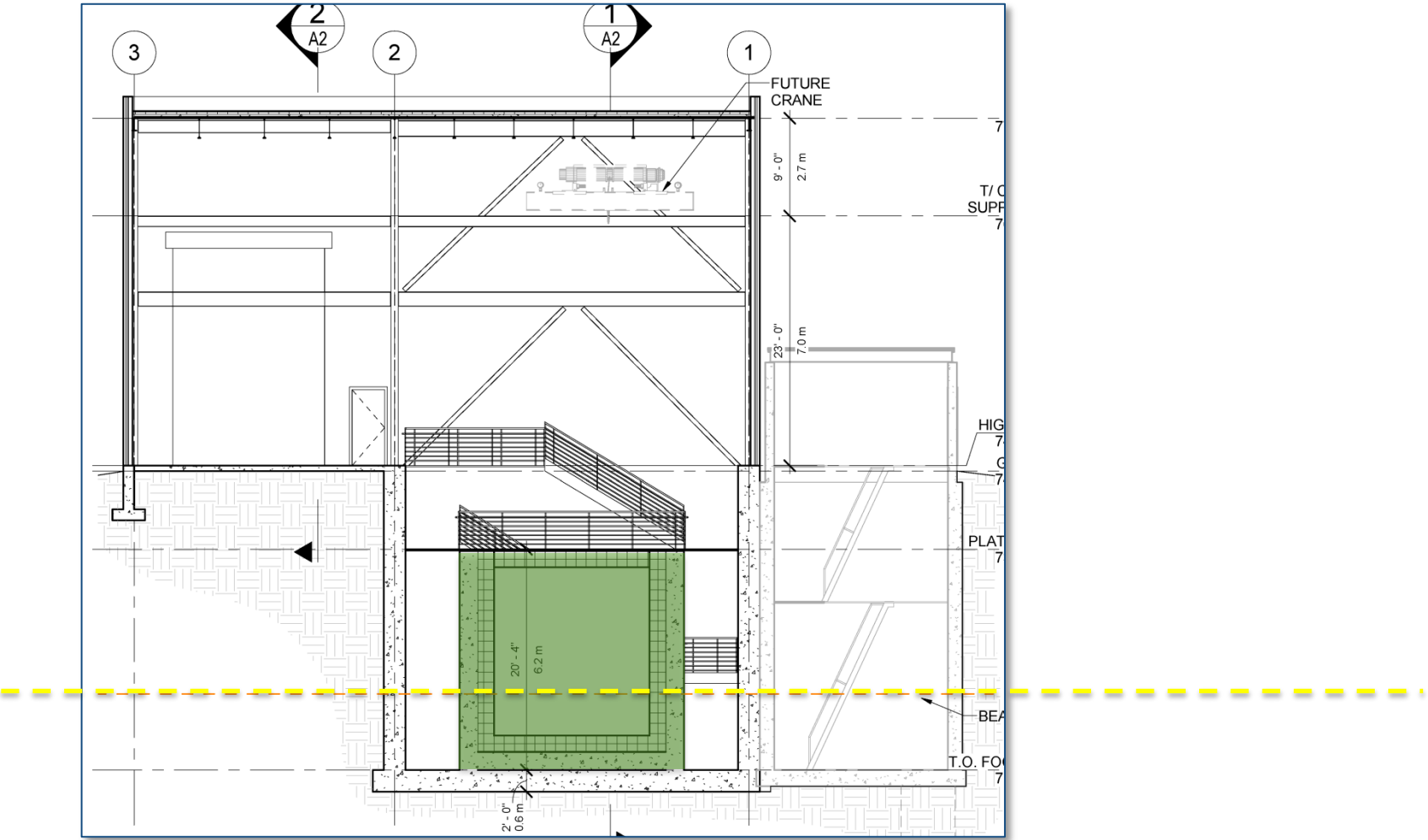
Plan at Detector Level

Near Detector Building



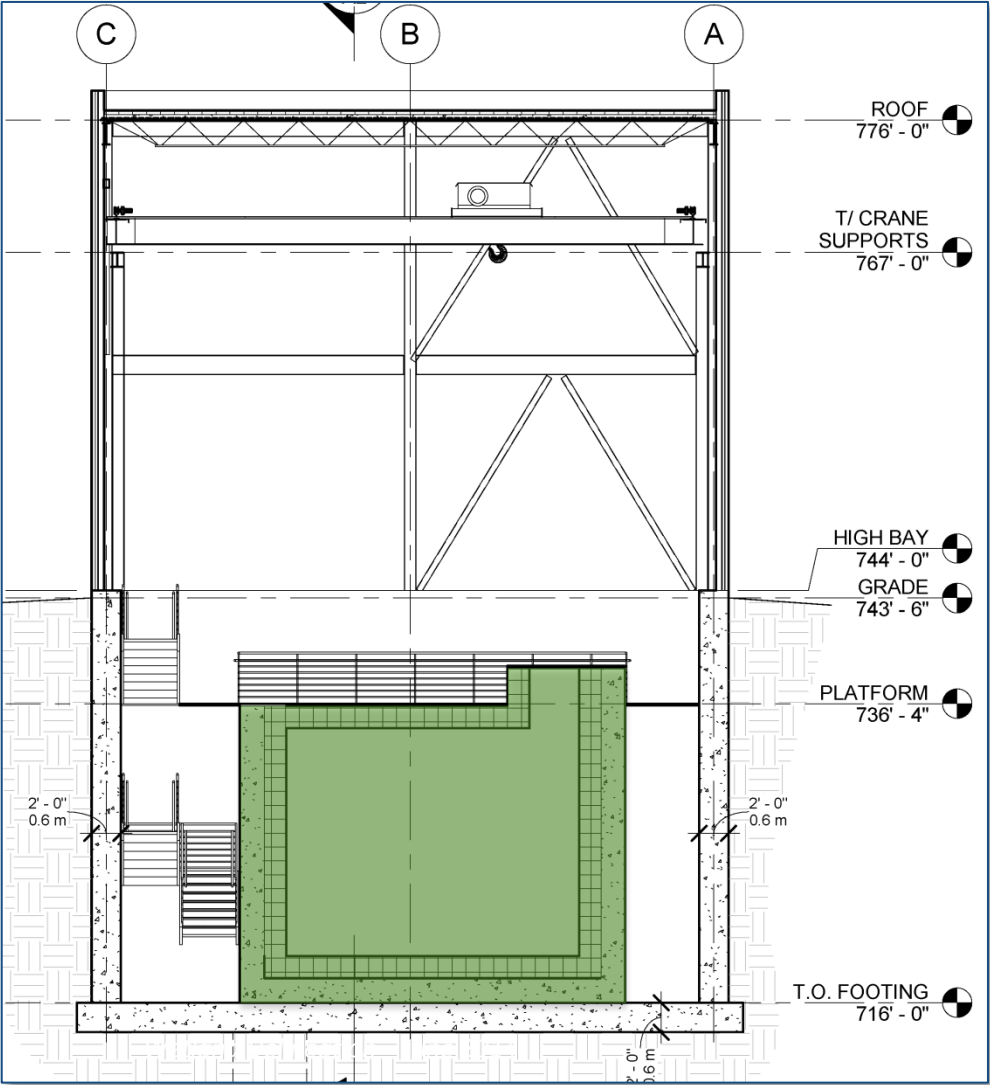
Plan at Grade Level

Near Detector Building



Section

Near Detector Building

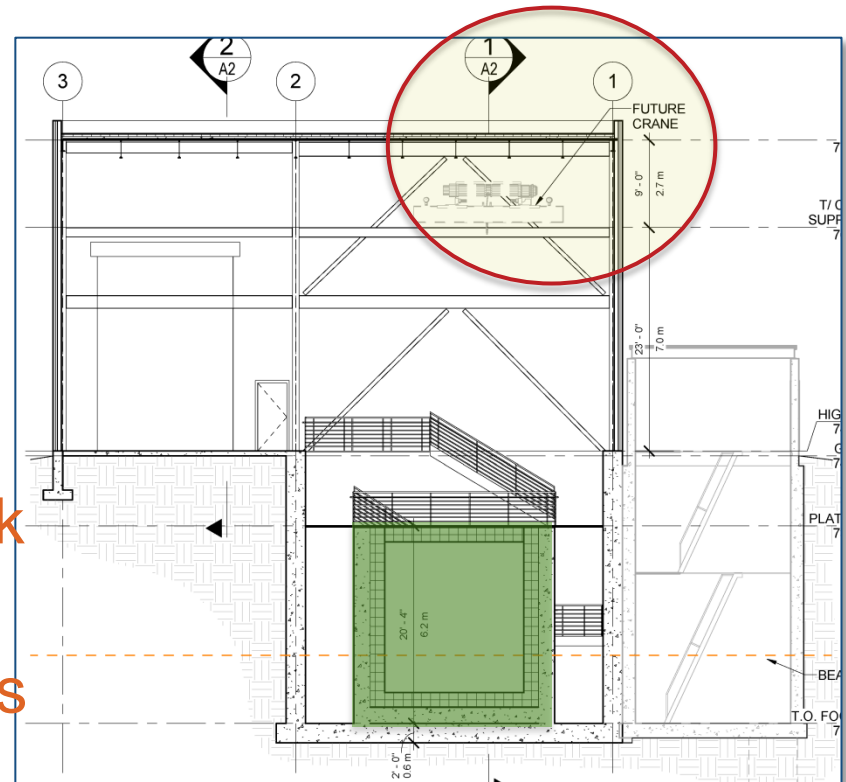


Section

Near Detector Building – Potential Changes

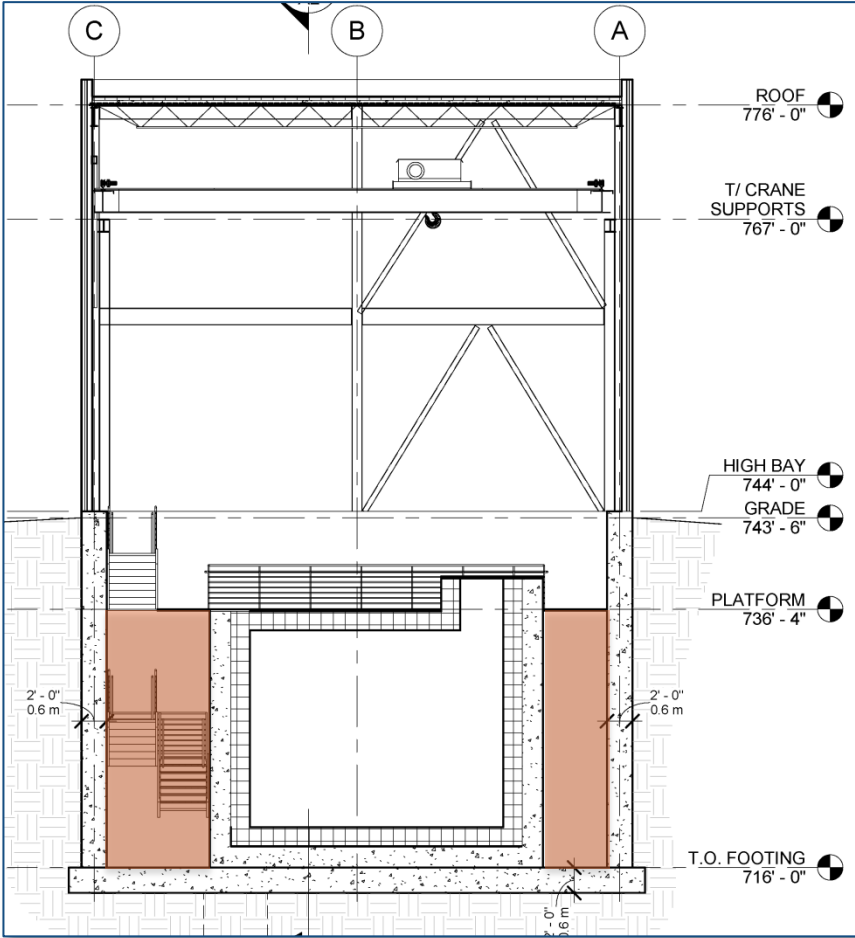
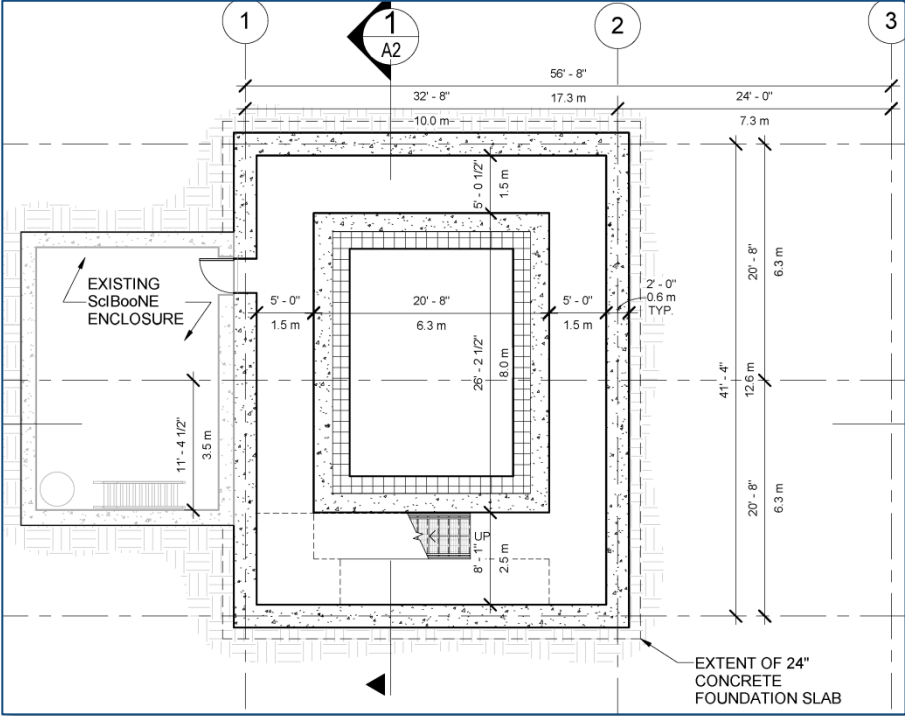
Overhead Crane

- Base scope does not include the crane, only the structure capable of supporting a crane;
- Recognize that a crane is needed for installation;
- Cost for 10 ton crane is ~\$140k
- Project Plan (section 2.1 on page 12) identifies the crane as one of the highest priorities;



Near Detector Building – Potential Changes

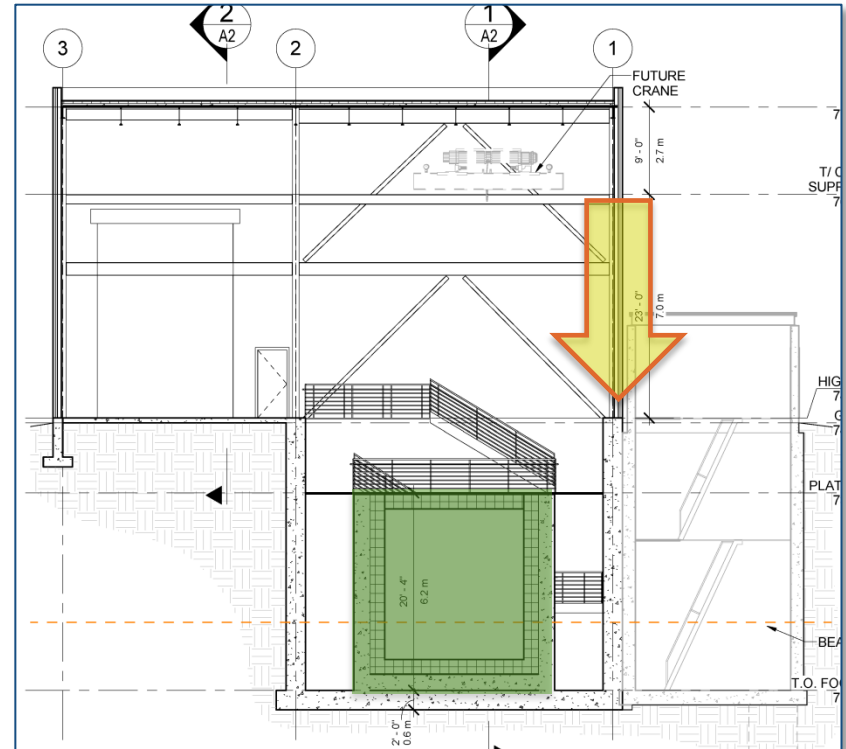
Reduced Size of Lower Level



Near Detector Building – Potential Changes

Shielding - #1

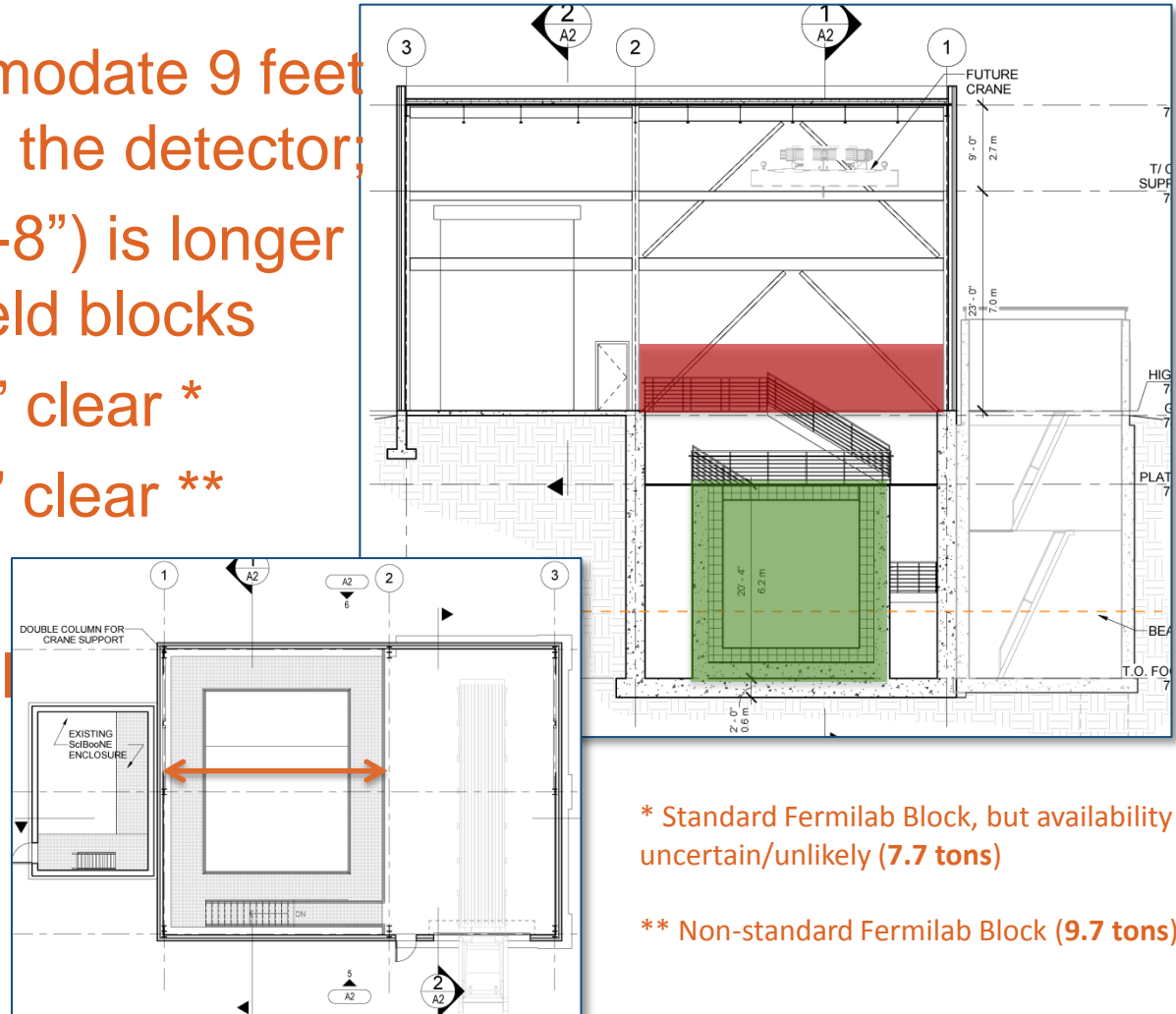
- Move enclosure north of SciBoone by ~10 feet;



Near Detector Building – Potential Changes

Shielding - #2

- Be able to accommodate 9 feet of shielding above the detector;
- Current Span (30'-8") is longer than standard shield blocks
- 24' "G" Block = 22' clear *
- 30' "N" Block = 28' clear **
- Revised Ledge
- Raise ground level
- Larger crane



* Standard Fermilab Block, but availability uncertain/unlikely (7.7 tons)

** Non-standard Fermilab Block (9.7 tons)

What's Next

Project Plan (SBN-doc-72)

- Issued for Comment and Compliance Review
- Revise document based on comments
- Ready to submit for FY15 funding in October 2014

Subsurface Investigation

- Soil boring to confirm the soil conditions

Final Design

- Develop an request for proposal for an AE firm
- Start Final Design in Spring 2015 (based on construction funding in FY2016 – October 2015)

Questions
